

AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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D. K. MINOR, and
GEORGE C. SCHAEFFER, { EDITORS AND
PROPRIETORS. }

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, FEBRUARY 24, 1838.

We are indebted to the Hon. Daniel Webster, for the Report on the Survey of the Western and Atlantic Railroad of the State of Georgia; to the Hon. E. Curtis, for Congressional papers; and to Col. H. W. Childs, for the Report of the Committee on Agriculture, and the draft of the Bill now before the Legislature of this State.

Also, to an unknown friend, for the Second Annual Report of the Raleigh and Gaston Railroad Company.

WESTERN RAILROAD.

The Bill granting aid to this Road, has passed the Massachusetts House of Representatives by a handsome majority. A motion to re-consider was negatived by a stronger vote than the original one in favor of the Bill.

The Bill provides for the raising of nearly two millions of dollars in aid of the Road.

RALEIGH AND GASTON RAILROAD CO.

(Continued from p. 622.)

Report of the Ch. Engineer.

Raleigh, January 19, 1838.

GENTLEMEN,—In accordance with established usage, I beg leave to submit to you, on the occasion of the approaching Meeting of the Stockholders, the following Report of the progress and present state of the work committed to your charge. And I shall combine therewith, as requested, a general description of the Road, as now located. This was not done previous to the last Annual Meeting, because the location was in-

complete, and it was thought unnecessary to make any report on the subject until it was completed.

Before entering on this description, I will briefly advert to the circumstances which led to a choice of routes. One of the earliest duties assigned to me, as your Engineer, was to make a reconnaissance and a survey, if it was found necessary, of two routes which presented themselves—the one passing up the ridge which separates the waters of Roanoke from those of Tar River, and crossing the last named River above Louisburg; and the other taking a more direct course to Raleigh, and consequently passing all the streams lower down. The result of this reconnaissance was given in detail in my letter of May, 1836. The Board agreed with me in preferring the upper or Western route, and all my subsequent observations on this line have gone to confirm me in my former impressions in its favor. The elevations and depressions found, equalled my most sanguine expectations: though it was believed expedient, in some cases, to adopt grades with higher rates of ascent than were at first contemplated.

To proceed with my account of the Road: It consists of two divisions—the first commencing at Gaston, and extending to a point in the vicinity of Chalk Level, 39½ miles from the south side of Roanoke river; and the second, extending from that point to Raleigh. Beginning with the first division, the line, as located, and in part constructed, is an extension of the long straight line terminating at Greenville and Roanoke Railroad; which is continued across the river, and for one mile up the ravine, on the south side. Thus the Valley of the Roanoke is passed by a straight line, or between three and four miles in length. This is a matter of some moment, when we consider that there are two steep inclined planes, descending towards the same point, and separated by the intervention of a short level. It may be important, as a safeguard against accidents, that the Engine man on the Locomotive, coming down one of these planes, should be able to see some distance up the other. The grade on the Greenville and Roanoke Railroad is 94

feet per mile; that on your's is 63 feet per mile.

The river is crossed by means of a bridge of 1040 feet in length, consisting of six spans, the greatest of which is 169 feet. The abutments and piers are of substantial masonry, coursed and dressed above water. Three of the piers, together with the abutments, are built by means of coffer dams, upon the solid rock in the bed of the stream. The other two piers are built on cribs, made of large timbers strongly framed together, which are filled and surrounded with rip-raps. These cribs rest in like manner on the solid rock, and the timber work is raised to a point sufficiently below the surface of the water to avoid the danger of decay. We were fortunate in procuring for this work a granite which, for beauty and durability, I believe to be unsurpassed by any in the world. The stones used, frequently present natural faces, which are almost perfect planes. I have seen a mass, thrown from the quarry by a single blast, which presented a natural plane surface of almost 100 superficial feet. The superstructure of the bridge is of the Susquehanna white pine, built on the plan of Town, but with the number of lattice pieces doubled, and an extra set of chords.

After crossing the river, the Road ascends for a distance of 14,045 feet, at the rate of 63 feet per mile—a rate of ascent which is never afterwards reached on your work. The line then continues along the ridge before mentioned, which divides the waters of Roanoke and Tar rivers, until it descends towards the latter.

This ridge, though comparatively uniform, is indented by numerous heads of streams, which, though so small as to require little else than dry stone drains to vent them, frequently occasion embankments of 30 feet, and more rarely, of 50 feet in height. The number of drains is so great, as to have added considerably to the cost of the work. The cuts, necessary to equalize the excavation and embankment, are frequently 20, and sometimes 30 feet in depth. The highest point of this ridge is 500 feet above tide water, and, as is always the case in such elevated countries, the

inequalities in the surface are much greater than a casual observation would lead us to suppose. The character of the soil on this division of the road, and indeed throughout the whole extent of the work, is such that the repairs, usually so heavy a tax on the profits of Railroads, will be far less than on any Railroad with which I am acquainted. Most of the cuts will be easily kept dry, and the earth is, in general, of sufficient consistency, to stand at the slopes given in constructing the work.

In adjusting the grades on this portion of the road, a view was had to the great accession of trade which may be expected at Henderson Depot. As far as was consistent with a just regard to economy, an effort was made to preserve the rates of ascent and descent, especially when opposing the heavy trade, at the lowest possible *maximum*. The accompanying Table, marked B, will give you the grades adopted. It will be seen that the grades opposing the heavy trade constitute only about one-fourth of the whole length of the Division, and of these, $4\frac{1}{2}$ miles are at the rate of 10 feet per mile and under— $4\frac{1}{2}$ at the rate of 20 feet per mile and under, and $2\frac{1}{2}$ at the rate of 25 feet per mile and under. They are most of them so short, that the momentum alone of the train will overcome them. On the whole, we may consider these grades sufficiently gentle for great useful effect. With regard to direction likewise, the line is decidedly favorable, as will be seen by reference to the accompanying table, marked B. This table, as well as the one marked A, commences on the south bank of Roanoke river, nearly half a mile from the point where the Raleigh and Gaston Railroad leaves the Greenville and Roanoke Road. For this distance, the grade rises at the rate of 25 feet per mile. After leaving the bridge, nearly 29, out of the 39 $\frac{1}{2}$ miles, consist of straight lines, and the curves are all sufficiently gentle, their radii varying from 11,460 feet to 1,910 feet.

Along the line, at the points most likely to concentrate the trade of the adjacent country, suitable Depots have been erected. The first Depot, at Littleton about nine miles from the river is the most convenient point for receiving the produce of all the country lying on Little Fishing Creek, and on Great Fishing Creek, near their junction. The next Warehouse, at Edgerton's will be the point of delivery for many very productive plantations between the Road and the Roanoke river. Opposite to Warrenton, a Depot has been erected, solely with a view to accommodate the trade of that place. The next Depot is fixed at the distance from Edgerton's which is usually allowed between stopping places, without reference to the Warrington Depot. It is at the house of Mr. John E. Twitty, where the road from Williamsboro' comes into the Raleigh road. This Warehouse will re-

ceive the products of the country for a considerable distance, on each side of the Railroad. A large quantity of tobacco may be expected at this point.

The second division of the road commences, as I have before stated, near Chalk Level. At one mile and three quarters from its commencement, Henderson Depot is placed.—This is by far, the most important intermediate Depot on the line. The Tobacco and other agricultural products of Granville, Persson, Caswell, and a part of Franklin counties, will be brought here. The trade from this fertile country will add largely to the receipts of your Road. Oxford is but ten miles from Henderson. The house erected here is of the same size with the other Depots on the line, but it is so arranged, that it may be at any time enlarged to any extent. It will probably be necessary to enlarge it considerably, but this can be better done when a short trial has shown us what will be required.

On the first eight miles of the second division, the work is very light. As the line descends to Tar river, the surface of the country becomes more broken, and deep cutting and filling often occurs, and in the excavations near the river, a great deal of rock has been found. The work at Tar river will be costly. The road crosses the river at an elevation of ninety-four feet above the surface of the water. Although a span of 300 feet would have been ample for the passage of this stream, it has been found economical to use a bridge of 825 feet in length. After thus extending the bridge, the embankment at each abutment still exceeds fifty feet in height. The abutments are of strong rubble masonry laid without cement—the piers, four in number, are of *coursed rock work*. This character of work combines a great degree of strength with a handsome appearance. Granite, of a suitable quality, has been found in great abundance near the site of the Bridge. This structure will be on the Lattice plan also; but, in this case, the roadway will be about four feet below the top of the Bridge instead of being near the bottom as at Roanoke. Yellow Pine for this work can be obtained within a reasonable distance. The line, after leaving Tar river, ascends for more than three miles at the rate of 39 6-10ths feet per mile, attaining the ridge between Tar river and Cedar creek, without meeting with any serious obstruction. About four miles from Tar river, at the point where the railroad crosses the road leading from Hillsboro' to Louisburg and Tarboro', it has been determined to place a Depot. The road running from this point to Hillsboro', is remarkably level and good, and leads, as you are aware, to a rich agricultural country. Tobacco and other articles will be received here from the greater part of Orange and Guilford, and Cotton from the country below. The merchandise for Louisburg will probably be

brought here as the cheapest and most expeditious route.

After passing this ridge, the line descends to Cedar creek, where another deep valley is encountered. Indeed, throughout the whole extent of this division of the road, the streams are very much depressed below the general level of the country. So, that grades, suited to Locomotive power, cannot be obtained without having very high embankments. The grade at Cedar creek is about 70 feet above the surface of the water. Here it is contemplated to have a Bridge of about 600 feet in length. The ground, after passing Cedar creek, is very broken, and continues so for the greater part of the distance to Neuse river. The two forks of Brandy creek, Richland creek, and many other streams of less note, require heavy embankments. The line for the ten miles next to Neuse, runs always not far distant from the road leading from Simms' Bridge to Powell's Bridge, and crosses Neuse between Powell's and the Falls' Bridge. The crossing at Neuse will be less expensive than that of any other stream of similar size on the road. It is passed at a moderate height, and a favorable bluff on the south side will greatly facilitate the graduation. I cannot omit to mention here the valuable water power afforded by the Falls of the river, a short distance above our bridge. Doubtless, this will be turned to some useful purpose when the resources of this country have been more clearly developed, and the spirit of enterprise stimulated by the completion of your work. Any use which can be made of it will add to the transportation on the road.

To proceed: After leaving Neuse, we encounter a great deal of expensive work. At first, heavy cutting, and afterwards a continual transition from cutting to embankment, and the reverse. At Jeffreys' creek, Manning's and Marsh creek, we shall require expensive structures of masonry and high embankments. The last large stream to cross is Crabtree, over which it is contemplated to build a Lattice Bridge. After leaving Crabtree, the line will ascend to Raleigh at rates which can easily be overcome by Locomotive power. The road will terminate at Halifax-street, between Mrs. Miller's and Mr. T. P. Devereux's, on a suitable site for a Depot. It is intended to erect here, some time during the present year, a commodious Warehouse and the necessary work shops.

There has not been sufficient time to collect the necessary information for locating any of the Depots, between the one mentioned, four miles south of Tar river and Raleigh.

It could not be expected that where the streams are so numerous and the dividing ridges so high, very moderate grades could be obtained. Those adopted, however, will be found to oppose no serious obstacle to the transportation on your road. The accompanying Table

marked C, shews the grades used, and the Table D, the direction of the lines.

With regard to the progress and present condition of the work, I have to say—

That the Bridge, at Gaston, is in a state of forwardness, and will probably be passed early in March. It had been foreseen that there would be great difficulty in procuring timber for this Bridge in proper time. It was impossible to get Yellow Pine nearer than in the vicinity of Jackson, on the Portsmouth Railroad, or near the Roanoke, below the town of Halifax. Long experience had taught me to dread the delays which would occur in transporting timber from either of these points. This, together with the consideration of the superior value of the White Pine for this kind of structure, induced me to procure nearly all the timber from Port Deposit in Maryland. A contract was made for this timber with Mr. Isaac Brown and Messrs. Jones & Reinehart, which was promptly and faithfully executed. I have no cause to regret having gone to such a distance for timber; for, though the cost was somewhat increased, it was not so much so as to counterbalance the advantages gained in the quality of the timber and in the early delivery. I contracted for a few of the larger pieces, to be gotten of Yellow Pine from the vicinity of Hill's Ferry on the Roanoke.—Every effort has been, hitherto, ineffectually made, to get these pieces delivered. But, for this delay, the bridge might have been passed on the first day of January. The whole of the timber, however, will now soon be on the ground, and the work will be pressed with the utmost vigour. Ten miles of the road will be ready for use on the completion of the Bridge. The graduation is finished for a distance of 48 miles, with the exception of a very small amount of work at two points, which will soon be completed. The timber for this division of the Road is nearly all delivered, and the superstructure is in rapid progress. Five Depots will be finished in a short time. There can be no doubt that the 48 miles will be ready for use, by the first day of July next, and possibly at a much earlier date. The grading of about 15 miles beyond this is well advanced. A large force is at work on the Bridge at Tar river—the masonry is progressing rapidly. One contractor is at work with an ample force, getting the timber for the superstructure, and another is engaged to construct the Bridge at soon as the timber shall be ready. It is hoped, though not expected with certainty, that the Road will go into operation to the Hillsboro' Road Depot, 4 miles south of Tar river, by the close of the year. Its completion cannot possibly be delayed much beyond that period.

All of the excavation, and embankment, and superstructure, from Tar river to Raleigh, are now under contract, and the contractors are commencing their

work. The greater part of the masonry and Bridges are under contract likewise. All the arrangements have been made with a view to complete the work in eighteen months from this date. Should our anticipations be realized, (and the progress of the work up to this time encourages us to hope that they will,) this work will be finished in as short a period as any of the same magnitude ever has been completed in the Southern country. On the works in the Middle and Northern States, any number of laborers may be collected; but here, whites cannot be induced to remain, and it is difficult to procure enough slave labor to execute work rapidly. But for the great exertions used, and the many inducements held out to persuade the owners of slaves to hire them on the Road, we would not have been able to collect a force during the past year. Now, however, since they have tried the experiment, the profits are sufficient to induce them to continue it.

I deem it due to myself to say, that, before the plan of Superstructure used on this Road was adopted, the subject was well weighed, and all the plans which have been proposed by others were carefully examined. But none, in my opinion, combined as many advantages as the one adopted. This is the plan used on the Petersburg and other railroads; which I have adhered to, although it might render me obnoxious to the charge of want of originality. I thought it very desirable to use a thicker Iron, experience having clearly shown its advantage; but when the iron was purchased, the price was very high, and it was thought inexpedient at that time to swell the cost of the work by procuring a more expensive Rail. It may be found best (the price having fallen) to use iron $\frac{3}{4}$ or $\frac{3}{8}$ of an inch thick, for the remainder of your Road.

It remains to give you an estimate of the cost of the Road. This can be done for the first Division with some degree of accuracy, the work being so nearly finished. Before doing so, however, I beg leave to call your attention to the circumstances which have affected the cost of this work.

At the time that the first Division was let, in October 1836, the rage for speculation was at its highest pitch, and the price of every thing had gone higher, perhaps, than was ever known before in our country. There was a great deal more work offered in all parts of the United States, than contractors could be

found to take. It was particularly difficult to procure contractors here, where no work had been going on previous to this time. The effect of this state of things was counteracted, in some measure, by promising the contractors facilities which they could not obtain elsewhere. Still the cost of your work has been increased by the high prices, beyond what it would have been under ordinary circumstances. There has been something, too, sacrificed for expedition. It was impossible to execute a work so rapidly, at the same cost as if the usual time had been allowed. It should be considered, also, that this is probably the heaviest work which has been hitherto constructed South of Potomac River.

But with all these difficulties, I challenge comparison with any other work in our country.

Estimate of the cost of the First Division, 40 miles in length.

| | |
|--|-----------|
| Graduation and Masonry, including Gaston Bridge, | \$277,000 |
| Superstructure, \$4,000 per mile, | 160,000 |
| Depots, | 12,000 |
| Superintendence and Contingencies, | 50,000 |
| | <hr/> |
| | \$499,000 |

Which is at the rate of \$12,475 per mile, or \$10,975 per mile, exclusive of the cost of Gaston Bridge.

Cost of the Second Division, 44 miles.

| | |
|--|-----------|
| Graduation and Masonry, including Bridges, | \$493,000 |
| Superstructure, \$4,000 per mile, | 170,000 |
| Depots, | 25,000 |
| Superintendence, &c. | 20,000 |
| | <hr/> |
| | \$718,000 |

Making the aggregate cost of \$1,215,000, for the whole 84 miles. The estimate of the cost of the Second Division is not to be considered as accurate, but is believed to be sufficiently so, for our present purpose. We may safely take this sum as the limit which will not be exceeded.

All which is respectfully submitted.

CHAS. F. M. GARNETT, C. E.

To the President and Directors of the Raleigh and Gaston R. R. Company.

Table A, referred in the Engineer's Report.

TABLE OF GRADES—FIRST GREAT DIVISION OF THE RALEIGH AND GASTON RAILROAD.

| Length of Grades. | RATE PER MILE. | | Total Ascent. | Total Descent. | Total Level. |
|-------------------|----------------|----------|---------------|----------------|--------------|
| | Ascent. | Descent. | | | |
| 550 | | | | | Level. |
| 14,045 | 62.99 | | 165.40 | | |
| 1,400 | | | | | Level. |
| 8,665 | | 5.28 | | 8.70 | |
| 500 | 29.57 | | 16.00 | | Level. |
| 2,918 | | | | | |
| 1,300 | | | | | Level. |
| 1,100 | | 19.53 | | 3.90 | |
| 1,100 | | | | | Level. |
| 2,200 | 29.56 | | 11.56 | | |
| 2,300 | | | | | Level. |
| 8,100 | 39.07 | | 59.94 | | |
| 1,800 | | | | | Level. |
| 7,811 | | 24.81 | | 37.00 | |
| 14,758 | | | | | Level. |
| 2,100 | 18.48 | | 7.70 | | |
| 3,130 | | | | | Level. |
| 2,413 | | 20.06 | | 8.70 | |
| 900 | | | | | Level. |
| 4,384 | 26.40 | | 22.50 | | |
| 1,400 | | | | | Level. |
| 5,727 | | 22.17 | | 24.48 | |
| 400 | | | | | Level. |
| 2,300 | 12.18 | | 5.29 | | |
| 2,800 | 29.56 | | 15.68 | | |
| 1,800 | | | | | Level. |
| 5,000 | 13.73 | | 13.00 | | |
| 4,200 | | | | | Level. |
| 7,600 | 39.00 | | 56.24 | | |
| 1,300 | | | | | Level. |
| 2,700 | | 15.84 | | 8.10 | |
| 700 | | | | | Level. |
| 5,700 | 25.87 | | 27.92 | | |
| 3,100 | | | | | Level. |
| 3,100 | | 20.00 | | 11.78 | |
| 4,600 | | | | | Level. |
| 7,800 | | 12.67 | | 18.72 | |
| 5,500 | | | | | Level. |
| 900 | | 18.48 | | 3.15 | |
| 2,100 | | | | | Level. |
| 1,800 | | 20.00 | | 4.94 | |
| 3,800 | | | | | Level. |
| 1,200 | 35.38 | | 8.04 | | |
| 8,223 | | | | | Level. |
| 5,400 | 39.07 | | 39.96 | | |
| 1,000 | | | | | Level. |
| 5,500 | | 8.45 | | 5.60 | |
| 500 | | | | | Level. |
| 5,800 | 23.76 | | 26.10 | | |
| 600 | | | | | Level. |
| 1,500 | | 6.86 | | 1.95 | |
| 604 | | | | | Level. |
| 1,500 | 29.56 | | 8.40 | | |
| 400 | | | | | Level. |
| 4,558 | | 7.92 | | 6.83 | |
| 2,100 | | | | | Level. |
| 1,300 | | 15.84 | | 3.90 | |
| 600 | 38.01 | | 4.32 | | |
| 816 | | | | | Level. |
| 1,700 | 38.54 | | 12.41 | | |
| 2,200 | | | | | Level. |
| 700 | | 31.68 | | 4.20 | |
| 300 | | | | | Level. |
| 2,193 | 38.54 | | 16.04 | | |
| 2,575 | | | | | Level. |
| 1,100 | 29.56 | | 6.16 | | |
| 300 | | | | | Level. |
| 3,600 | | 20.00 | | 13.68 | |
| 400 | 8.45 | | 0.64 | | |

Table B, referred to in Engineer's Report.

TABLE OF DIRECTION—FIRST GREAT DIVISION OF RALEIGH AND GASTON RAILROAD.

| Total length of curvature. | | Radius | | Radius |
|----------------------------|-------|--------|-------|--------|
| Radius | feet. | Radius | feet. | feet. |
| 11,460 | feet. | 5,730 | feet. | 2,865 |
| 152,665 | | 6,850 | | 22,029 |
| | | | | 19,710 |

TABLE OF DIRECTION.

SECOND GREAT DIVISION OF THE RALEIGH AND GASTON RAILROAD.

| Total length of curvature. | | | | | |
|-----------------------------------|--------|---------|---------|---------|----------|
| Total length of straight line. | Radius | Radius. | Radius | Radius | Radius |
| 11,825 | 11.450 | 7,640 | 5,730 | 3,820 | 2,865 |
| 140,230.7 | 4,075 | 4,176.5 | 98,9365 | 17203.7 | 8043.9 |
| | | | | | 35,366.8 |
| | | | | | 2,788.0 |
| | | | | | 16160.00 |

Table C, referred to in Engineer's Report.

TABLE OF GRADES—SECOND GREAT DIVISION OF RALEIGH AND GASTON RAILROAD.

| Length of Grades. | RATE PER MILE. | | Total Ascent. | Total Descent. | Total Level. |
|-------------------|----------------|--------|---------------|----------------|--------------|
| Ascent. | Descent. | | | | |
| 1,400 | 33.94 | | 9.00 | | |
| 9,825 | | | | | Level. |
| 1,575 | | 16.76 | | 5.00 | |
| 5,300 | 11.94 | | 12.00 | | |
| 2,400 | | 20.90 | | 9.50 | |
| 300 | | | | | Level. |
| 1,600 | 19.80 | | 6.00 | | |
| 5,280 | | | | | Level. |
| 7,958 | | 35.00 | | 52.75 | |
| 3,800 | | 30.00 | | 21.28 | |
| 300 | | | | | Level. |
| 2,461 | 33.00 | | 17.72 | | |
| 300 | | | | | Level. |
| 1,600 | | 17.00 | | 5.12 | |
| 4,760 | | 35.00 | | 31.89 | |
| 400 | | | | | Level. |
| 900 | 30.00 | | 5.04 | | |
| 400 | | | | | Level. |
| 2,100 | 30.00 | | 11.96 | | |
| 2,100 | | 29.538 | | 11.76 | |
| 15,080 | | 34.843 | | 99.512 | |
| 1,030 | | | | | Level. |
| 17,675 | 39.60 | | 132.599 | | |
| 200 | | | | | Level. |
| 4,600 | | 14.322 | | 12.65 | |
| 3,000 | | | | | Level. |
| 7,000 | | 34.848 | | 46.20 | |
| 800 | | | | | Level. |
| 8,045 | 39.60 | | 60.338 | | |
| 600 | 39.60 | | 4.50 | | |
| 213,63 | | | | | Level. |
| 1186,4 | | 34.84 | | 7.83 | |
| 300 | | | | | Level. |
| 750 | 39.60 | | 5.62 | | |
| 1,404 | | | | | Level. |
| 2224,8 | | 34.84 | | 14.68 | |
| 317,9 | | | | | Level. |
| 3424,3 | 34.84 | | 22.6 | | |
| 379 | | | | | Level. |
| 2100 | 34.84 | | 13.86 | | |
| 300 | | | | | Level. |
| 2600 | | 34.84 | | 17.16 | |
| 300 | | | | | Level. |
| 2700 | 39.60 | | 20.25 | | |
| 735 | 31.68 | | 4.41 | | |
| 365 | | | | | Level. |
| 2819,5 | | 31.68 | | 16.91 | |
| 4813,8 | | | | | Level. |
| 6700 | | 39.60 | | 50.25 | |
| 2766,6 | | | | | Level. |
| 4900 | | 31.68 | | 29.40 | |
| 1000 | | | | | Level. |
| 2000 | | 39.60 | | 15.00 | |
| 41,00 | | 31.68 | | 24.60 | |
| 1100 | | | | | Level. |
| 5304 | | 39.60 | | 39.78 | |
| 920,3 | | | | | Level. |
| 8966,7 | | 34.84 | | 58.56 | |
| 300 | | | | | Level. |
| 5,300 | 39.60 | | 39.75 | | |
| 1,700 | | | | | Level. |
| 1,227 | | 34.848 | | 8.10 | |
| 173 | | | | | Level. |
| 2,417 | 39.60 | | 18.13 | | |
| 1,283 | | | | | Level. |
| 1,260 | | 35.904 | | 8.56 | |
| 640 | | | | | Level. |
| 6,537 | 50.16 | | 62.10 | | |
| 263 | | | | | Level. |
| 4,100 | | 39.60 | | 30.75 | |

Raleigh, January 20, 1838.

In pursuance of the order made by the Stockholders, at the last annual meeting, the undersigned have examined the Books kept by the President, and find the accounts so arranged as to present the receipts and disbursements under the appropriate and proper head.

RECEIPTS.

The receipts from the Stockholders, to the first of January 1838,

amount to \$406,125 85

Amount obtained from the Bank of the State of North Carolina on loan 70,000 00

\$476,125 85

EXPENDITURES.

The aggregate expenditures, supported by proper vouchers amount to 456,199 76

Showing a balance in the hands of the President, to be accounted for of \$19,926 09

The account hereunto appended, marked A, will shew the different Receipts and Expenditures. The Expenditures under the different heads, in the Exhibit, show the amount of the cost of the operations on the various contracts, and will be found on examination, by each Stockholder, to be supported by proper and satisfactory vouchers on file in the Office of the President. In passing on the accounts, we required vouchers in support of the different charges. They were readily produced, and, as far as we are competent to judge, we are of opinion, that, in every respect, the management of the operations by the President, and other disbursing Officers, has been judicious and proper.

We submit the foregoing, respectfully, as our Report, and suggest that, if the same should be approved, that the President be directed to balance the Books accordingly.

Respectfully submitted,

WM. ROBARDS.

WM. PEACE.

To the Stockholders of the Raleigh and Gaston R. R. Company.

| Length of Grades. | RATE PER MILE. Ascent Descent. | Total Ascent. | Total Descent. | Total Level. |
|-------------------|-------------------------------------|------------------|-------------------|-----------------|
| 200 | | | | Level. |
| 1,100 | 21.12 | 4.40 | | Level. |
| 200 | | | | Level. |
| 1000 | 10.56 | | 2.00 | Level. |
| 200 | | | | Level. |
| 600 | 26.40 | 3.00 | | Level. |
| 200 | | | | Level. |
| 2,800 | 39.60 | | 21.00 | Level. |
| 200 | | | | Level. |
| 900 | 34.848 | 5.83 | | Level. |
| 1,500 | | | | Level. |
| 7,100 | 50.16 | | 66.75 | Level. |
| 500 | | | | Level. |
| 2,100 | 50.16 | 19.95 | | Level. |
| 200 | | | | Level. |
| 1,400 | 44.88 | | 11.90 | Level. |
| 300 | | | | Level. |
| 8,400 | 50.16 | 79.54 | | Level. |
| 1,000 | | | | Level. |

Account A, referred to in the Report of the Committee.

RECEIPTS AND EXPENDITURES OF THE RALEIGH AND GASTON RAILROAD COMPANY, TO JANUARY 1, 1838.

| | | | |
|--|--------------|-------------|--------------|
| Capital Stock, being Cash received on account of Instalments, to Jan. 1, 1838, | - | - | \$406,125 85 |
| Borrowed of the Bank of the State, | - | - | 70,000 00 |
| Expended on account of Surveys, | - | \$31,632 01 | \$476,125 85 |
| Salaries, | - | 11,112 32 | |
| Land Damages, | - | 10,790 47 | |
| Horses, | - | 740 00 | |
| Gaston Bridge, | - | 48,903 69 | |
| Masonry, | - | 12,516 72 | |
| Superstructure, [&c., | - | 70,260 07 | |
| Depots, water stations, | - | 3,425 08 | |
| Contingent expences, | - | 1,751 32 | |
| Excavation and Embankment, | - | 222,103 03 | |
| Iron, | - | 40,996 17 | |
| Tar River Bridge, | - | 1,929 88 | |
| Cars, &c., | - | 40 00 | |
| Total amount of expenditures to Jan. 1, 1838, | \$456,199 76 | | \$456,199 76 |
| Balance of cash on hand, Jan. 1, 1838, | - | - | \$19,926 00 |

THE INTERIOR OF A COAL MINE.
Translated from the *Courier des états Unis*.

St. Etienne is, properly speaking, one great workshop. Its busy prosperity, continually increasing, has not yet acted in a perceptible manner, upon the primitive disposition of its inhabitants. The population of this city, in the space of thirty years, has increased three fold—its size has increased in proportion. At St. Etienne no one is idle. Both sexes, all ages, all conditions give themselves up to labor. From the cellar to the garret, by day and by night, the ears are stunned by the confused tumult that the ringing of anvils, the screeching of files, and the simultaneous noise the different trades produce.

Men, women and children forge iron or weave silk, the alliance of which two trades is not the least wonderful phenomenon of this singular city. At fifty fathoms beneath the soil, even they labor—the bowels of the earth conceal another mass of courageous, devoted, indefatigable laborers, and whose profession is but one continual wrestling with death.

Some travellers have given us an account of the salt mines of Poland, and the copper mines of Dalecarlia. The picture that has been given us is such as the most fantastic imagination would have fancied. We might believe ourselves in an ideal world, a creation of fairies and genii. These subterranean cities, these streets, straight to a line, and shining with a brilliancy continually equal—this population radiant with health and contentment, which resembles, in every sense, the hours of repose, in courts and houses—this spectacle of life, motion, abundance, and even of luxury, where a ray of the sun has never pierced, or a trace of vegetation ever animated—all this, we say, is singularly proper to awaken curiosity. How much difference there is in this description, from that of a coal mine! Here on the contrary, all is sombre, all is isolated, every thing breathes forth sadness and horror—but if its appearance seems less poetical, it leaves upon the soul of the observer an impression more deep, more magical. It remains astonished with the

resignation, intrepidity, and even heroism which necessarily belongs to these men, who, true martyrs to labor, bring themselves voluntarily in gloomy darkness.

The coal mines that surround the basin of the Loire do not communicate with one another—they have each their own issue in the form of a well. As soon as the foot is placed without the city, a building of wood is met with, here and there, blackened with soot, enveloped in smoke almost as large as the Morgue. It is called Vargue.

To imagine what must be the descent into a coal mine, it is necessary to call to mind the summit of one of the towers of Notre Dame. A little vessel of a circular form, constructed of planks, and scarcely two cubic feet in depth, descends before you, balancing itself on the extremity of a cord, and about the length of an arm distant from the wall. The moment of embarking comes—you look up to the heavens and the clouds—you lean forward over the gulf, so as to lose the equilibrium beneath your feet. It is a horrible moment. You must place one foot in the vessel, and but one—place it quickly, and you are plunged whirling into the abyss. In proportion as the vessel sinks, the opening grows smaller, the light is enfeebled, the air becomes more rare, the temperature more elevated—your chest sinks with uneasiness, and raises itself in spasms for breath. The walls of the well are wet with dampness, you meet, at first, with some marshy plants, afterwards nothing, not a blade of grass. In the midst of the confused murmur which fills your ears, you distinguish the noise of some drops of water, which fall into the well at measured intervals, like the noise of a pendulum of a clock. In the midst of the journey, you meet the ascending vessel, the contact of which is dangerous. You repulse it with the foot remaining outwards—if this motion makes you totter—if you have the misfortune to support your hand upon the smutty and oily wall, your hand slips, the vessel turns over, and you are launched into eternity, as the English say.

You may now ask, what is it, in comparison with such a descent, to venture in a bark, to feel beneath your feet, while flying from the shore, but a moving plank between you and the sea. Oh! how glad you would be, when plunging for the first time into a mine, to find yourself upon the sea, rolling in its foam, beholding the sun, and breathing the air freely! You may there enjoy the light, the air, and your arms, upon the waves—but in a dark and narrow well, close as a prison, deep as a whirlpool, and horrible as annihilation, it is far different—yet a miner hastens down as gaily as a sailor on ship board; and those have been seen, who, either by bravado or an indifference to danger, descend two hundred metres, holding themselves by gripping a cord, without any support under their feet. One trembles to relate such a trial

of strength, more common than is imagined! What is it then to see it?

Arrived at the bottom, you are placed upon a narrow plank, which covers, in the form of a bridge, the bottom of the well, a deep basin filled with thick and muddy water. When you let go the cord, your feet are tottering like those of a drunken man—your heart beats, and your head grows heavy. The heaven is to your eye but one resplendent point. Before you, opens a gallery, then another, then a pandemonium of narrow corridors, dark and damp, which increase, mingle and grow entangled, like the windings of a labyrinth. You see, afar off, some red glimmers that light up, by their reflection the drops of water which hang from the roof, and the veins of gold that streak the coal like ribands. You creep an hour, sometimes upon your knees, sometimes upon your breast, and meeting at each step only pools of ice, an infectious air that suffocates you, and, moreover in the midst of the joyous chants that reach you from all sides, across the thousand mouths of the galleries, like the magic choirs of *Robert the Devil*, or the *Temptation*. Whilst you listen to this invisible harmony, you are elbowed by a minor, who passes, bent double with a bag of coal on his back, holding a lamp in one hand, and supporting himself with the other, upon a little staff of iron. At length you arrive at the places where they are at work. Ten laborers are there, half naked, kneeling upon the ground, and cutting laboriously, enormous masses of coal, the surface of which sparkles with blue and gilded spangles.

The state of a minor is hereditary:—this is a privilege that no one dreams of attacking. Ordinarily he knows neither how to read or to write; for what use, what has he do beneath the sun? Speak to him of sending his children to school, he will not understand you; he works from the age of six years; his father died in the mine, he will die there also. Sunday is the only day of the week on which he can see the sun—on that day he rises before the dawn. To dirty and torn garments succeed a jacket of velvet, a grey hat with large flaps; and for his wife, a calico petticoat embroidered with flowers and lace. Touch the hand of the miner, he salutes you, he speaks to you, he smiles upon you, he raises his hat, he speaks, he smiles upon everybody. How proud he is giving his arm to his wife, whom he leads to mass, and from mass to the inn, according to ancient custom! For the miner is a free thinker; new ideas have not shaken his old belief; in his ignorant simplicity, he believes, he practices what his ancestors have believed and practised; and if he consecrates some hours to the enjoyments of the inn, it is not to contract there a taste for idleness and dissipation. The week is so long in a mine, that one need not reproach him for the few moments that he spends in refreshing

and making himself merry. Besides, it is rare that he abuses them; he is in the midst of his family, and his brothers, for so he calls his fellow-laborers.

To be continued.

IMPORTANT INVENTION.

We have been informed that there is to be seen at the iron foundry of Messrs. Baugher & Wolf, of this borough, something new in the matter of wheels for railroad cars. It is an invention by Mr. Wolf of that very useful article, on a principle which we believe is entirely new, and, although it has not yet been tested, promises fairly to be a valuable matter with respect to the preservation of property and human life. It is a cast iron wheel without spokes, of about the same shape as the common Railroad car wheel—hollow in the middle—the outer side or rim convex—weighing but about 30 pounds more than the common wheel, and so strong that a friend of ours, who tried the experiment, assures us that, although accustomed to quarrying heavy stone, he could not break it by a succession of *bona fide* beatings with a sledge hammer. Numbers of other persons have tried it with the same success. Many accidents have occurred in consequence of the incapacity of the wheels of Railroad cars to sustain the weight with which they are burthened, and we trust that this invention (for such we believe it is,) may prove a sufficient preventive against any thing of the kind.—*Columbia (Pa.) Spy*.

MISSISSIPPI AND ROCK RIVER CANAL COMPANY.

The proposed canal is intended to connect the Mississippi with Rock River by a cut of about five miles from Rock River above the Rapids, to the Mississippi. We know this country well; and by this cut, an inland navigation of great extent will at once be secured through the most fertile region of Wisconsin Territory. We venture to hazard the opinion that no western enterprise before the public, offers more inducements for safe investment of capital than this; and we hazard this opinion upon an accurate knowledge of the country, which will be rendered accessible to steamboat navigation by this improvement.—*Cour. and Enq.*

The survey of a Railroad route from Nashua, N. H., to Worcester, Mass., was commenced on the 5th inst. We understand that it is the project of a New York Company. By this route passengers and goods may be landed at Stonington, Conn., in five hours.—*Cour. and Enquirer*.

The first trip of the cars on the Detroit and St. Joseph's Railroad was to be made on the 3d inst. The road is completed from Detroit to Ypsilanti, thirty miles.—*Commercial Adv.*

CLEVELAND AND PITTSBURGH RAILROAD.

It will be seen, by an extract from the *Cleveland Intelligencer*, that the Legislature of Ohio has given that city power to borrow two hundred thousand dollars, to be applied to this road. This is a very important move towards the advancement of this work; and there is great reason to hope, that it will soon be rapidly advancing towards completion. When this work, and the Cross Cut Canal are completed, Buffalo may tremble for her title of chief city of the Lake. Indeed, we have no doubt, that every succeeding year will bring Cleveland nearer to an equality with her rival Lake city.

The mere southern and western position of the former city, gives it advantages which no art or human exertion can counteract—more especially, while those natural advantages are improved by a people so clear-sighted and enterprising as the Clevelanders.—*Pittsburgh Adv.*

Volume Six will be completed as speedily as possible. The next, or Volume for 1838, will be published in a more convenient form for preservation.

Subscribers who desire to be supplied with missing numbers, will do well to apply for them soon. We shall always take pleasure in furnishing them if we have them to spare.

Particular attention will be given to the procuring of all kinds of Instruments required by Engineers.—Orders must be accompanied with the necessary funds or city acceptances.

For Sale.—A Level, made to order by Brown & Hunt, and in first rate order. Enquire at this office.

Wanted on a Lease.—A good country place, with suitable out-houses, and from 5 to 15 acres of land, a short distance of the city. Enquire at this office.

DIED.—On the 13th February inst. Mr. Austin Maine, aged about 24 years, son of Stephen Maine, Esq., of Hartland, Vt. His disease, the *Small Pox*, was taken without his being knowingly exposed to its influence; and its results should be a warning to those who have neglected to avail themselves of that mild and sure preventive—if thoroughly taken—vaccination.

Mr. Maine had chosen the profession of Engineering, to the studies of which he was directing the energies of a sound mind and untiring industry. Modest and retiring in his manners, he had but few associates; those few, however, appreciate highly his integrity and virtues.

FRAME BRIDGES AGAIN.

The subscriber will build Frame Bridges in any part of the United States, Maryland not excepted, and will extend them to as long a span, and warrant them to be as strong, durable, and cheap as those made by any other method.

Having no patent right, he requires no agents. A large number of bridges of his construction are to be seen. Young gentlemen, who wish, can be instructed in the true mathematical principles of building bridges, and the application of the same to practice.

JOHN JOHNSON.
Burlington, Vt., Jan. 1838. F14U

G. Mitchell, Printer, 265 Bowery, N. Y.